Panasonic

AN7238K

Single Chip IC for FM-AM IF, AM Tuner, FM MPX

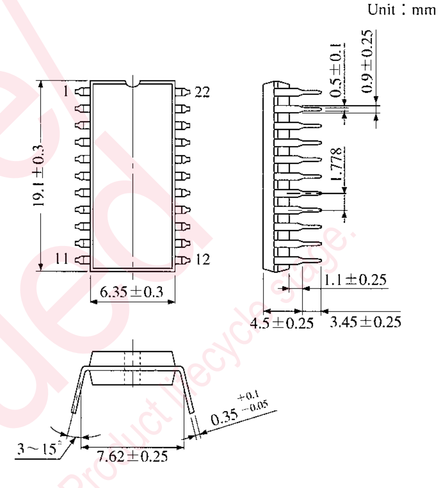
■ Overview

The AN7238K is a single chip IC integrating the circuits for FM−AM, IF−Tuner and FM−MPX demodulation which are most suitable for DTS radio cassette recorder.

The chip is encapsulated into 24-pin · shrunk DIL package.

■ Features

- On a single chip (FM−AM IF−Tuner, FM MPX)
- With tuning indicator pin which can utilize as stop signal.
- Stop sensitivity variable
- Stop width variable (Only FM)

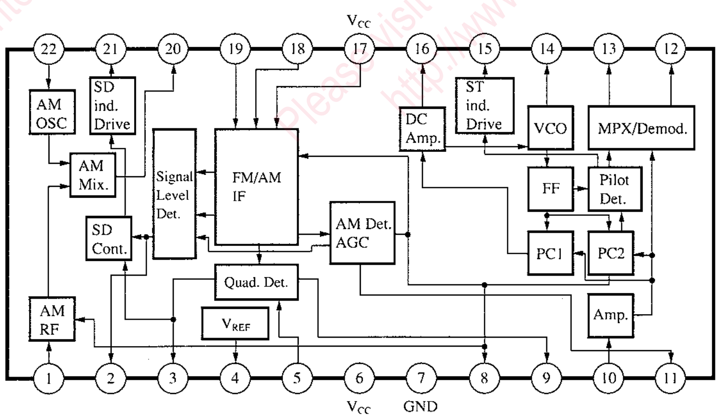


22-Lead Shrunk DIP Package (22-SDIP)

■ Pin Descriptions

Pin No.	Pin Name	Pin No.	Pin Name
1	AM RF IN	12	Rch. OUT
2	SD Level Adjustment	13	Lch. OUT
3	SD Width Adjustment	14	VCO
4	V_{REF}	15	Stereo Indicator
5	FM Detection Coil	16	MPX Phase Detector/Mode Switch
6	V_{CC}	17	V_{CC}
7	GND	18	AM IF IN
8	AGC/MPX Pilot Signal Detector	19	FM IF IN
9	FM Detection Output	20	AM Mix. OUT
10	MPX IN	21	SD OUT
11	AM Detection Output/Forced Mono.	22	AM OSC

■ Block Diagram



■ Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Supply Voltage	V_{CC}	7	V
Supply Current	I_{CC}	25	mA
Power Dissipation	P_D	175	mW
Operating Ambient Temperature	T_{opr}	−20 ~ +75	℃
Storage Temperature	T_{stg}	−55 ~ +150	℃

Note) Surge withstand voltage of Pin⑧ is about 200V under the condition of 200pF, 0Ω. Take consideration for the static electricity.

■ Recommended Operating Range (Ta=25℃)

Parameter	Symbol	Range
Operating Supply Voltage Range	V_{CC}	3.8V~7.0V

■ Electrical Characteristics (V_{CC}=5V, Ta=25℃)

Parameter	Symbol	Condition	min.	typ.	max.	Unit
FM						
Detection Output Voltage	$V_{O(FM)}$	V_{in}=80dBμ Monaural	48	69	90	mVrms
Limiting Sensitivity	$V_{i(lim)}$	Input monaural decreasing V_O (FM) by 3dB	33	36	39	dBμ
SD Lamp ON Level	$V_{i(FMSD)}$	No modulation	41	51	61	dBμ
SD Lamp ON Level	$B_{W(FMSD)}$	No modulation	±5	±25	±45	kHz
Channel Balance	CB	V_{in}=80dBμ, Monaural	−2	0	2	dB
No Signal Current *	$I_{tot(FM)}$	Stereo mode	(—)	(19)	(—)	mA
Signal to Noise Ratio *	$S/N_{(FM)}$	V_{in}=80dBμ 30%Mod.	(—)	(63)	(—)	dB
MPX						
Separation	Sep.	V_{in}=80dBμ Stereo	36	46	—	dB
Total Harmonics Distortion Ratio	THD	V_{in}=80dBμ Stereo	—	0.5	1.5	%
Stereo Lamp ON Level	$V_{p(ON)}$	V_{in}=80dBμ, Stereo modulation, Only pilot signal	—	3.5	7.0	%
Stereo Lamp OFF Level	$V_{p(OFF)}$	V_{in}=80dBμ, Stereo modulation, Only pilot signal	0.9	2.3	—	%
Capture Range *	CR	V_{in}=80dBμ,Stereo	(—)	(±2.9)	(—)	%
Carrier Leak *	CL	V_{in}=80dBμ,Stereo	(—)	(31)	(—)	dB
AM						
Detection Output Voltage	$V_{O(AM)}$	V_{in}=60dBμ	52	74	96	mVrms
Maximum Sensitivity	$S_{max.}$	Input for $V_{O(AM)}$=20mV	4	13	22	dBμ
SD Lamp ON Level	$V_{i(AMSD)}$	No modulation	12	22	32	dBμ
No Signal Current *	$I_{tot(AM)}$	MPX section also included	(—)	(14)	(—)	mA
Signal to Noise Ratio *	$S/N_{(AM)}$	V_{in}=80dBμ 30%Mod.	(—)	(43)	(—)	dB

Note) FM : f_{in}=10.7MHz, $f_{Mod.}$=1kHz, 30% modulation (However, 100% stereo modulation at MPX measurement)
AM : f_{in}=1MHz, $f_{Mod.}$=400Hz, 30% modulation

* The characteristic value shown in parentheses is a reference value but not guaranteed value.

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